

REMARKS

Claims 1-23 and 25-31 are pending in the application.

Claims 1-4, 7, 9-14, 22, 23 and 25-29 were rejected.

Claims 15-21 and 31 were allowed.

Claims 5, 6, 8 and 30 were objected to.

Claim 1 is amended herewith.

Claim 5 has been cancelled.

New claim 32 has been added.

II. 35 U.S.C. §103 Claim Rejections

In the Office Action, claims 1-4, 7, 9-14, 22, 23 and 25-29 were rejected under 35 USC §103(a) as being unpatentable over Carlson (U.S. Patent No. 5,859,853) in view of admitted prior art. Applicants respectfully traverse that rejection and request reconsideration by the Examiner.

The invention disclosed and claimed in this application is directed to an improved methodology for transmission of high-speed data bursts via a traffic channel in a wireless communication system, particularly a system based on CDMA modulation and coding. As Applicants describe in the Specification, data transmission in a wireless communication system is conventionally sent in bursts, with the burst duration determined in respect to a fill level of an input buffer. However, as Applicants also explained, it is not uncommon for additional data packets from the same user to become available in the input buffer prior to the ending of the data burst duration. It would, as Applicants teach, increase transmission efficiency if those later-arriving data packets from the common user could be included in the currently active data burst (which is not possible with methods of the prior art). To that end, the invention provides a methodology for accommodating later-arriving data packets by assigning a burst duration time that is larger than necessary to transmit the data available in the

buffer at the sampling time. Thus, as additional data packets for the user enter the input data buffer, they can be accommodated in the presently active data burst. To avoid unnecessarily wasting transmission resources in the event that such additional data packets do not become available in the input data buffer, the invention provides a sliding time interval, independent of, and shorter than the burst duration, which is periodically restarted during the course of a given burst duration. The restarting of that time interval occurs as a function of data packets being detected as available for transmission. Accordingly, should no packets be detected between the time a given time interval is restarted and the end of that interval, the invention operates to terminate the data burst (rather than wait for the extended burst duration to run its course).

The teaching of Carlson is focused on a quite different idea. Specifically, the disclosure of Carlson related to the art of accumulating packets at a node into a “train” and is directed to a methodology for adjusting the length of the train to be sent from the node. In particular, Carlson’s methodology contemplates an optimum train length that the node would like to send, and a timer interval representing the maximum time to wait before sending the next train. According to Carlson’s methodology, the train of packets at a node is sent at the expiration of the timer interval even if the optimum train length has not been reached. In this event, the optimum train length is adjusted downward to the length of the train actually sent. Alternatively, in the event the optimum train length is reached at a node prior to the expiration of the timer interval, the train is sent from the node at that point, but the optimum train length for future trains at that node is adjusted upward by the number of packets (if any) arriving at the node after the train is sent from the node, but before expiration of the timer.

It can thus be seen that, whatever the similarity of Carlson to the general idea of Applicants' invention – management of the transmission of data bursts in a wireless system, Carlson actually teaches away from the central point of Applicants' invention. As explained above, the invention here operates to extend a current burst in the case of one or more new packets arriving for transmission within a timing interval beyond the assigned burst duration (that timing interval being less than the assigned burst duration and independent thereof), thus achieving a dynamic management of burst duration as a function of packets offered for transmission. In contrast, the methodology of Carlton makes no adjustment for a current train awaiting transmission at a node – once the nominal train length is reached, it is sent, without regard to the potential availability of additional packets for transmission. That Carlton continues to monitor for packets becoming available during some remainder of the maximum transmission timer interval as a basis for adapting the nominal size of future trains to be sent from a node plainly has no bearing on the transmission function for the current train. The dynamic management of burst duration for the current data burst transmission is, as shown above, a key facet of the invention here.

While Applicants believe it clear that Carlson not only fails to show or suggest their invention but actually teaches away from the invention, it is also apparent the claims directed to the invention establish patentable distinction over the teaching of Carlson. Independent claims 15 and 31 have been allowed and thus need not be further discuss. Independent claim 1 has been amended to incorporate the limitation of dependent claim 5, which was indicated in the Office Action to be allowable if rewritten in independent form. Thus, claim 1 should now be allowable. As explained below, independent claims 22 and 27, which were rejected, are believed to incorporate limitations in their current form which distinguish over Carlson.

Claim 22 includes the limitation “adding said known time period to said burst duration upon detection of said at least one additional data packet during said known time period.” Applicants believe it clear that Carlson neither shows nor suggests any such feature. Carlson teaches a single time interval that is either coextensive with or greater than the interval corresponding to its optimum train length. Carlson makes no adjustment whatsoever in that time interval for any reason, and particularly not in relationship to additional packets being received. Applicants submit that nothing in the teaching of Carlson could reasonably be construed to show or suggest any such functionality. Withdrawal of the rejection as to independent claim 22 being unpatentable over Carlson is respectfully requested.

Claim 27 includes the limitation “extending said burst duration commensurate with at least one of said known time periods upon detection of said at least one additional data packet within said known time period.” Simply put, Carlson does not teach or suggest any extension of the current burst duration. Nor does Carlson teach or suggest any such extension of the burst duration “commensurate with at least one of said known time periods.” Rather, Carlson teaches an expansion of the number of packets in an optimum train for a future train to be sent. Moreover that future expansion of an optimum train length according to the methodology of Carlson is a function of packets to be added, not a time function. Accordingly, Applicants submit that nothing in the teaching of Carlson could reasonably be construed to show or suggest the functionality of the identified limitation for Applicants' claim 27. Withdrawal of the rejection as to independent claim 27 being unpatentable over Carlson is respectfully requested.

II. Allowed and Allowable Subject Matter

Claims 15-21 and 31 were indicated as being allowed, and are re-presented here without change. Dependent claims 5, 6, 8 and 30 were objected to as being dependent on a rejected base claim, but were indicated as being allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The Applicants thank the Examiner for providing this indication of allowed and allowable claims.

As noted above, independent claim 1 has been amended to incorporate the limitation of allowable dependent claim 5 (along with the cancellation of claim 5). Amended independent claim 1 is accordingly believed to now be allowable. Applicants have also introduced new claim 32 representing allowable dependent claim 30 rewritten in independent form. Allowance of new claim 32 is respectfully requested.

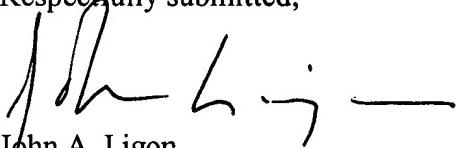
III. Conclusion

Having addressed the Examiner's rejection bases herein, it is believed that, in view of the preceding amendments and remarks, this application now stands in condition for allowance. Such allowance is respectfully requested.

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Please charge any fees due in respect to this amendment to Deposit Account No. 50-1944.

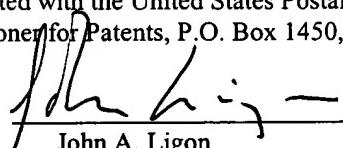
Respectfully submitted,


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I hereby certify that this Response to Office Action is being deposited with the United States Postal Service as First Class Mail, postage prepaid, in an envelope addressed to Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313 on July 26, 2004.

By: 
John A. Ligon